REMARKS/ARGUMENTS

In the Office action dated May 5, 2006, claims 1 – 16 were rejected. In response, Applicants have amended claims 1, 2, 3, 9, 10, 11, and 16, canceled claims 8 and 13, and added claim 21. Applicants hereby request reconsideration of the application in view of the amended claims, the added claim, and the below-provided remarks.

Claims 1 – 16 were rejected under 35 U.S.C. 102(b) as being anticipated by Lugaresi (U.S. Pat. No. 5,241,172).

<u>Claim 1</u>

Claim 1 has been amended to recite:

"An optical encoder comprising:
a coding element having *an index track* with at least one transparent section *and a separate position track* having multiple transparent sections;
a light source positioned to output light to the index and position tracks;
an index photodetector array positioned to detect light that passes through the transparent section of the index track, the index photodetector array comprising first and second photodetectors with different surface areas and a combined width dimension that allows the entire index photodetector array to be simultaneously lit by light that passes through the transparent section of the index track; and
a separate position track photodetector array positioned to detect light that passes through the transparent sections of the position track."

Claim 1 as amended specifically recites <u>separate</u> index and position tracks and <u>separate</u> index and position photodetector arrays. Separate index and position tracks 124 and 126 are disclosed, for example, at paragraphs [0020] – [0022] and Fig. 3 of Applicants' specification. Likewise, a separate index photodetector array 142 (comprised of photodetectors 146 and 148) and a position photodetector array 140 (comprised of photodetectors 144) are disclosed, for example, at paragraphs [0020] – [0022] and Fig. 3 of Applicants' specification.

Applicants assert that claim 1 is not anticipated by Lugaresi because Lugaresi does not disclose an optical encoder that includes an index track <u>and a</u>

separate position track and an index photodetector array and a separate position photodetector array. Lugaresi discloses a codewheel with a single optical track, see for example, Fig. 1 optical track (17) in code wheel (3). The same track (17) is used for both indexing and position tracking, see col. 1, lines 33 – 40.

With reference to Fig. 7, Lugaresi discloses that:

> "the code wheel 203 includes an index window 216 formed by removing a spoke 215 from wheel 203, resulting in creation of a window 216, having a length 218 of three units." (col. 6, lines 23 – 26) (emphasis added).

That is, Lugaresi discloses an index window that is formed in the optical track (17). The optical track (17) is used for both indexing and position tracking. Further, the same photodetector assembly (208) is used for both indexing and position tracking.

In contrast to Lugaresi, claim 1 recites an optical encoder that includes separate index and position tracks and separate index and position photodetector arrays. Because Lugaresi discloses a single optical track (17) and a single photodetector assembly (208) while claim 1 recites an index track and a separate position track and an index photodetector array and a separate position photodetector array, Applicants assert that claim 1 is not anticipated by Lugaresi.

Claim 3

Claim 3 recites in part "wherein the index track of the coding element includes *an opaque section with a width dimension that matches the width dimension of the first photodetector.*" As described above, Lugaresi discloses an index window (216), which is a transparent section in the code wheel (3). As shown in Fig. 7 of Lugaresi, the index window (216) does not include "an opaque section with a width dimension that matches the width dimension of the first photodetector" as recited in claim 3. Lugaresi does disclose spokes (215), however, spokes (215) are clearly outside of the index window (216). Because the index window (216) does not include "an opaque section with a width dimension that matches the width dimension of the first photodetector" as recited in claim 3, Applicants assert that claim 3 is not anticipated by Lugaresi.

Claim 7

Claim 7 includes similar limitations to claim 3. Because of the similarities between claims 3 and 7, Applicants assert that the remarks provided above with regard to claim 3 apply also to claim 7.

Claim 11

Claim 11 has been amended to include the limitations of claim 13 and claim 13 has been canceled. Claim 11 now includes the limitation "wherein the index track of the codewheel includes *an opaque section with a width dimension that matches the width dimension of the first photodetector.*" This limitation is similar to claim 3. Because of the similarities between claims 3 and amended claim 11, Applicants assert that the remarks provided above with regard to claim 3 apply also to amended claim 11.

New Claim 21

New claim 21 is similar to amended claim 21 except that new claim 21 recites an index track that is primarily opaque but "at least one transparent section comprises *a transparent section with a width dimension that matches the width dimension of the first photodetector.*" As stated above, Lugaresi discloses with reference to Fig. 7 that:
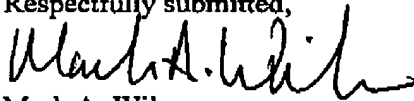
> "the code wheel 203 includes an index window 216 formed by removing a spoke 215 from wheel 203, resulting in creation of a window 216, having a length 218 of three units." (col. 6, lines 23 – 26) (emphasis added).

According to Lugaresi, "the principal photodetector 210 has a unit width" (col. 6, lines 41 – 42) while the index window has a width of three units. That is, the index window, which is entirely transparent, is three times as wide as the principal photodetector and therefore does not match the dimension of the principal photodetector 210. Because Lugaresi does not disclose "at least one transparent section comprises *a transparent section with a width dimension that matches the width dimension of the first photodetector*" as recited in claim 21, claim 21 is not anticipated by Lugaresi.

Claims 2, 4 – 6, 9, and 10 are dependent on claim 1 and claims 12 and 14 – 16 are dependent on claim 11. Applicants assert that these dependent claims are allowable at least based on an allowable base claim.

Applicants respectfully request reconsideration of the claims in view of the claim amendments, claim addition, and the remarks made herein. A notice of allowance is earnestly solicited.

Respectfully submitted,

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